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(56) Documents Cited
GB 2243207 A EP 0596783 A US 4868719 A
US 4712044 A US 4556862 A

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INT CL^6 B60Q 1/26 1/34 1/46 , B62J 6/00
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(54) Safety device for a vehicle

(57) A safety device for a road user comprising: a display panel bearing an array of energizable light generating sources such as LED's a controller adapted to provide for energy to be applied to the array, whether continuously or intermittently, either to the entire array or to discrete sources so that the display panel provides an indication of direction or change relative to some datum established by the array; a switch device operable by a user to regulate the operation of the controller. The device can incorporate a buzzer to provide a sound as well as a light output.

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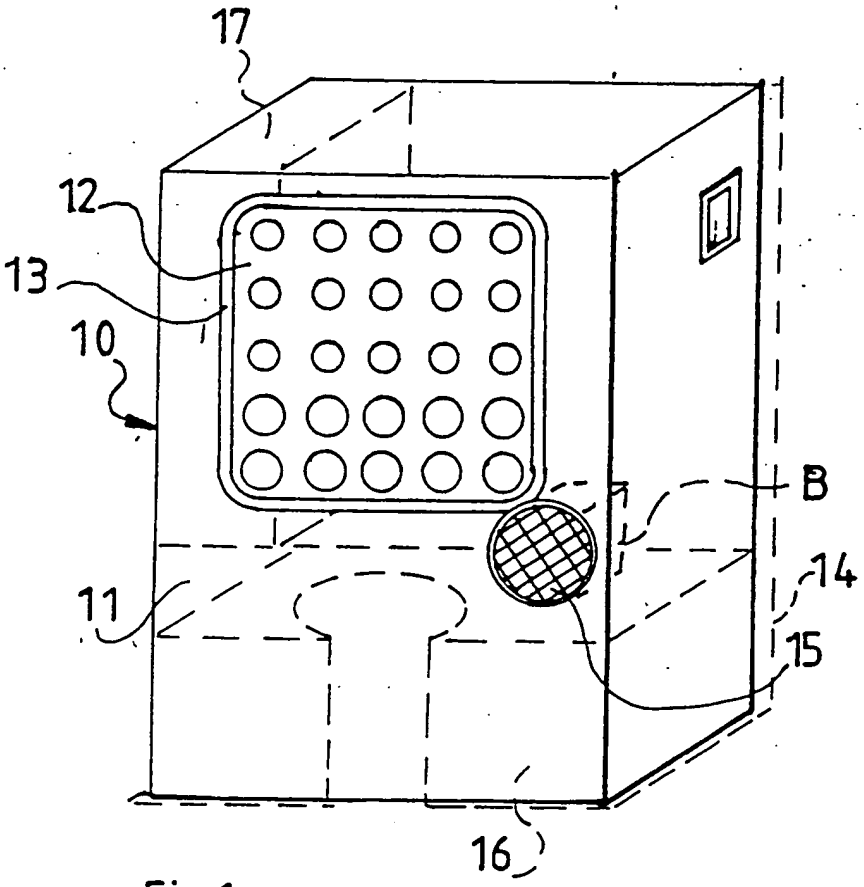

Fig 1

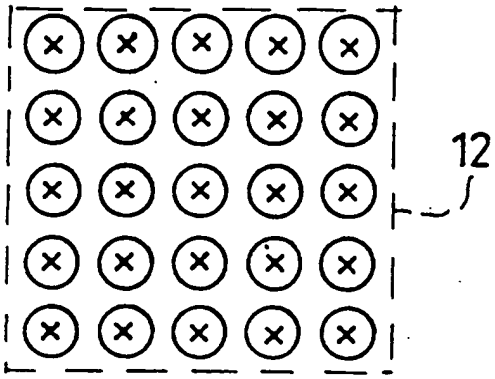

Fig 2a

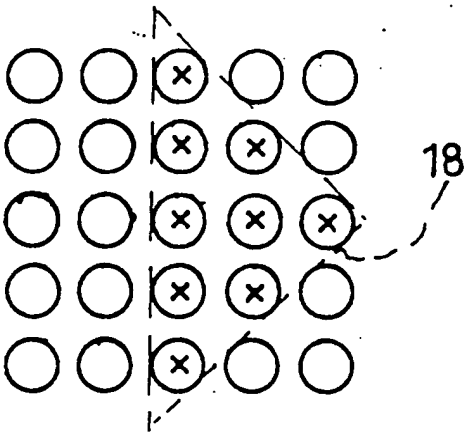

Fig 2b

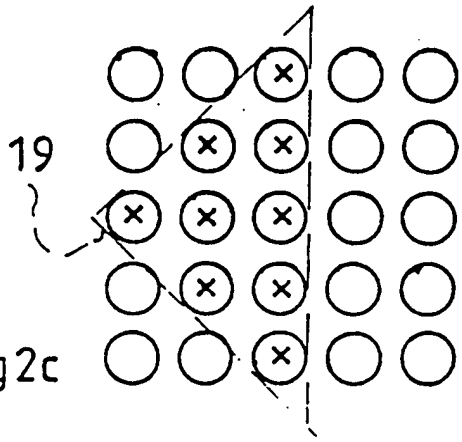

Fig 2c

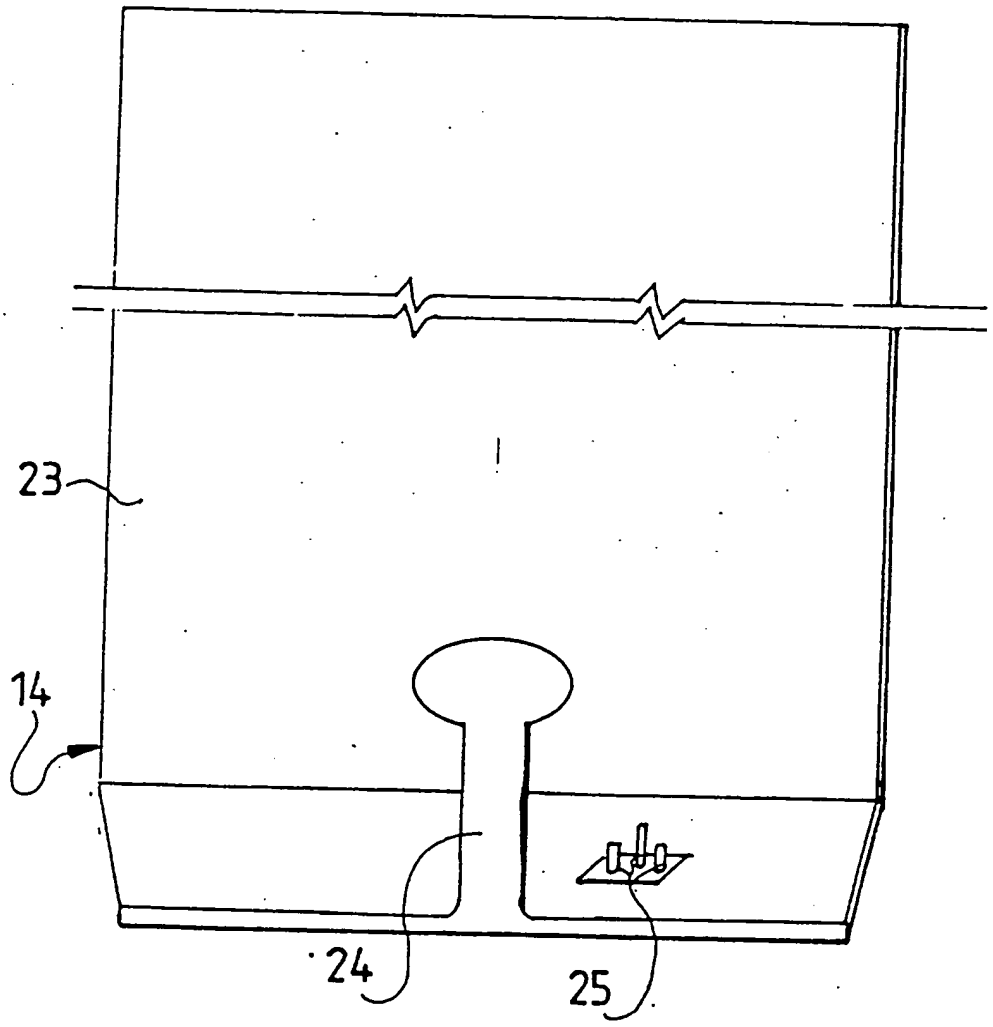

Fig 3

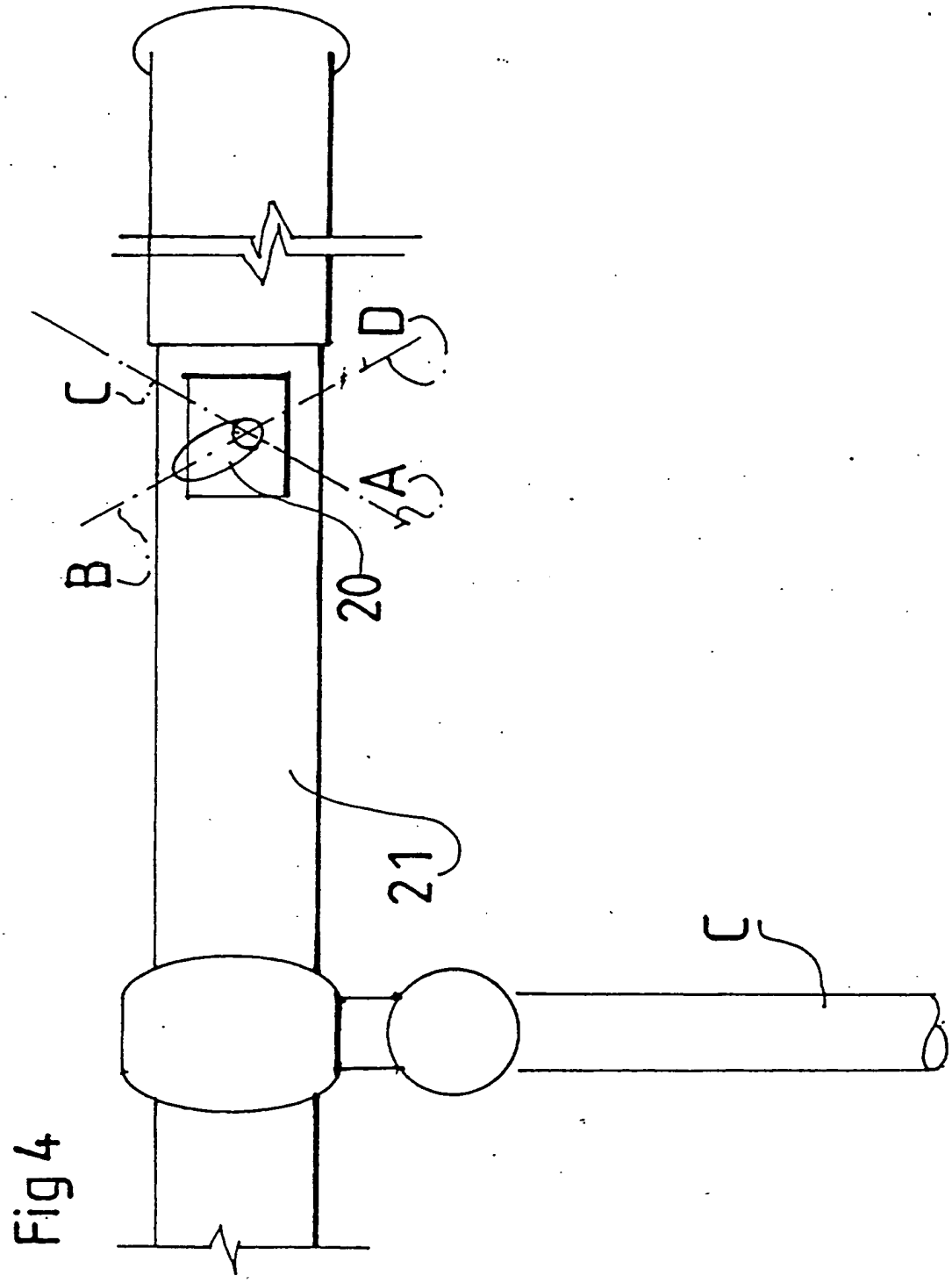

Fig 4

SAFETY DEVICE

This invention relates to a portable safety device. It is particularly, though not exclusively, concerned with a safety device for use by cyclists.

In poor light conditions the presence of road users such as cyclists or pedestrians can be difficult to identify by other road users such as cars and trucks. While cyclists are obliged to provide lights on their machines poorly maintained lights or poor batteries or dynamo systems can lead to ineffective or even non-existent lighting. In addition while cyclists can readily and clearly signal changes of direction in day time such signaling is not readily achieved at night.

According to the present invention there is provided a portable safety device in the form of:

1 a display panel bearing an array of energizable light generating sources,

2 a controller adapted to provide for energy to be applied to the array, whether continuously or intermittently, either to the entire array or to discrete sources so that the display panel provides an indication of direction or change relative to some datum established by the array;

3 a switch device operable by a user to regulate the operation of the controller.

According to a first preferred version of the present invention the display panel is a member adapted for demountable attachment to clothing, head gear or equipment.

According to a second preferred version of the present invention or the first preferred version thereof the light generating sources are embodied by light emitting diodes.

According to a third preferred version of the present invention or any preceding preferred version thereof the array is energized by means of a battery supported by the display panel.

According to a fourth preferred version of the present invention or any preceding preferred version thereof the switch device is linked to the display panel by way of a lead providing for the location of the switch device remote from the display panel.

An exemplary embodiment of the invention will now be described with reference to the accompanying drawings of a safety device for a cycle of which:

Figure 1 is perspective view from the rear;
Figures 2A, 2B, 2C show a part of Figure 1 in various stages of operation;
Figure 3 shows a holder for the device of Figure 1; and
Figure 4 shows a cycle handlebar incorporating a switch for operating the device of Figure 1.

Figure 1 shows a safety device 10 made up of a body 11 incorporating an array 12 of light emitting diodes ('LED's') laid out in a square pitch pattern behind a lens 13. The device 10 is mounted in a carrier 14 shown in broken outline (shown in more detail in Figure 3) which enables the device to be mounted facing rearwardly from a bicycle C. The device 10 incorporates a buzzer B with an outlet aperture 15, a battery section 16 and a controller 17.

Figure 2A to 2C show different groups of illuminated LEDs in array 12 for conveying different forms of information. Normally the array used by illuminating different groups of LED's in a flashing mode.

Figure 2A shows all the LED's in the array 12 in operation in a continuous flashing mode to draw attention to the existence of the cycle and rider.

Figure 2B shows a group 18 of LED's forming a triangular symbol flashing to indicate a right turn. In this case only the LED's in the group 18 are flashing the remaining LED's in the array 12 being left UN-illuminated. However in another embodiment all the LED's in the array 12 can be flashing and group of LED's in the group 18 can be differentiated from the remainder of the array by being continuously illuminated or flashed at a different rate or in a different colour.

Figure 2C shows a group 19 of LED's forming a triangular symbol flashing to indicate a left turn. As was described in connection with Figure 2B the LED's in the indicating group can be distinguished from the remaining LED's in the array 12 in a number of ways.

The operation of, and symbols formed by, the array 12 is governed by way of controller 17 mounted on a circuit board.

Regulation of the controller 17 is undertaken by a rider by way of a switch 20 (Figure 4) located on handlebar 21 of the bicycle B. The switch 20 can be located in one of a number of different positions A to D.

Position A provides for all the LED's in the array 12 to flash at a regular interval so drawing attention to the existence of the cycle C and its rider to other road users closing on them from behind.

Position B provides for LED's in region 19 of the array 12 to flash giving an unequivocal indication of an intention to change direction to the left. If desired the controller 17 can not only provide for the flashing of a particular region of the array but also for varying the speed of flashing on switching from one display mode to another.

Position C provides for LED's in region 18 to flash giving an indication of change of direction to the right.

Position D isolates the switch 20 from the controller 17.

Figure 3 shows carrier 14 for the device 10 made up of a cradle 23 with a retaining clip 24. Pins 25 provide for an electrical linkage between the device 10 and the switch 20.

The use of a flashing array of LED's provides for a visually distinctive display with low power consumption.

The buzzer B is activated to provide a pulsed sound output by means of the switch 20 when at an indicating position A, B, C. This provides for an audible warning signal to be generated in a quiet environment for a pedestrian since a bicycle is a quiet means of transport.

The exemplary embodiment refers particularly to a device used by a cyclist. For this purpose the invention provides for a variety of useful information to be readily displayed efficiently by means of a light (and also sound) signalling device. Other versions of the invention can be readily provided typically by incorporating the device into a belt for wearing by a cyclist.

The device is readily used by other road users such as motor cyclists, particularly low powered ones, pedestrians, or riders of horses.

Claims

1 A portable safety device in the form of:

1 a display panel bearing an array of energizable light generating sources,

2 a controller adapted to provide for energy to be applied to the array, whether continuously or intermittently, either to the entire array or to discrete sources so that the display panel provides an indication of direction or change relative to some datum established by the array;

3 a switch device operable by a user to regulate the operation of the controller.

2 A safety device as claimed in Claim 1 wherein the display panel is a member adapted for demountable attachment to clothing, head gear or equipment.

3 A safety device as claimed in any preceding claim wherein the light generating sources are embodied by light emitting diodes.

4 A safety device as claimed in any preceding claim wherein the array is energized by means of a battery supported by the display panel.

5 A safety device as claimed in any preceding claim wherein the switch device is linked to the display panel by way of a lead providing for the location of the switch device remote from the display panel.

6 A safety device as hereinbefore described with reference to the accompanying drawings.

7 A vehicle equipped with a safety device as claimed in any preceding claim.

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Patents Act 1977
Examiner's report to the Comptroller under Section 17
(The Search report)

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Relevant Technical Fields

(i) UK Cl (Ed.N) F4R (RFA, RFC)

(ii) Int Cl (Ed.6) B60Q (001/26, 001/34, 001/46); B62J (6/00)

Search Examiner
S I AHMAD

Date of completion of Search
17 JULY 1995

Databases (see below)
(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASE: WPI

Documents considered relevant following a search in respect of Claims :-
1-7

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages		Relevant to claim(s)
X	GB 2243207 A	(M J KEILTYKA) see the last paragraph on page 6	At least 1
X	US 4868719 A		At least 1
X	US 4712044 A	(MARK S PHILLIPS)	At least 1
X	US 4556862 A	(MEINERSHAGEN)	At least 1
X	EP 0596783 A	(VALEO VISION)	At least 1

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